

1 CLAIMS

2
3 I Claim:

4
5 1. An implement pitch-yaw system, comprising:
6 a support structure;
7 an implement structure pivotally attached to said support structure;
8 a connecting member slidably attached to said support structure;
9 a first yaw actuator and a second yaw actuator attached between said implement
10 structure and said connecting member; and

11 a pitch actuator attached between said connecting member and said support
12 structure.
13

14
15 2. The implement pitch-yaw system of Claim 1, wherein said support structure
16 is attachable to a vehicle.
17

18
19 3. The implement pitch-yaw system of Claim 1, wherein said support structure
20 has an elongate structure.
21

22
23 4. The implement pitch-yaw system of Claim 3, wherein said support structure
24 has a cavity for receiving said pitch actuator.
25

26
27 5. The implement pitch-yaw system of Claim 3, including a slide structure
28 slidably positioned about said support structure, wherein said connecting member is
29 attached to said slide structure.

1

2

3 6. The implement pitch-yaw system of Claim 1, wherein said connecting
4 member has a winged structure, wherein said first yaw actuator and said second yaw
5 actuator are attached to opposing portions of said connecting member.

6

7

8 7. The implement pitch-yaw system of Claim 6, wherein said connecting
9 member is centered along a longitudinal axis of said support structure.

10

11

12 8. An implement pitch-yaw system, comprising:
13 a support structure;
14 an implement structure pivotally attached to said support structure;
15 a connecting member slidably attached to said support structure;
16 a first yaw actuator and a second yaw actuator attached between said implement
17 structure and said connecting member;
18 a pitch actuator attached between said connecting member and said support
19 structure; and
20 a control unit in communication with said first yaw actuator, said second yaw
21 actuator and said pitch actuator for controlling the same.

22

23

24 9. The implement pitch-yaw system of Claim 8, wherein said support structure
25 is attachable to a vehicle.

26

27

28 10. The implement pitch-yaw system of Claim 8, wherein said support
29 structure has an elongate structure.

1
2
3 11. The implement pitch-yaw system of Claim 10, wherein said support
4 structure has a cavity for receiving said pitch actuator.
5
6

7 12. The implement pitch-yaw system of Claim 10, including a slide structure
8 slidably positioned about said support structure, wherein said connecting member is
9 attached to said slide structure.
10
11

12 13. The implement pitch-yaw system of Claim 8, wherein said connecting
13 member has a winged structure, wherein said first yaw actuator and said second yaw
14 actuator are attached to opposing portions of said connecting member.
15
16

17 14. The implement pitch-yaw system of Claim 13, wherein said connecting
18 member is centered along a longitudinal axis of said support structure.
19
20

21 15. A method operating an implement pitch-yaw system having a support
22 structure, an implement structure pivotally attached to said support structure, a
23 connecting member slidably attached to said support structure, a first yaw actuator and
24 a second yaw actuator attached between said implement structure and said connecting
25 member, and a pitch actuator attached between said connecting member and said
26 support structure, said method comprising the steps of:

- 27 (a) determining whether a pitch forward condition exists;
28 (b) extending said pitch actuator if said pitch forward condition exists;
29 (c) determining whether a pitch rearward condition exists; and

1 (d) retracting said pitch actuator if said pitch rearward condition exists.

2

3 16. The method of operating an implement pitch-yaw system of Claim 15,
4 including the following steps:

5 (e) determining whether a yaw condition exists; and

6 (f) extending or retracting said first yaw actuator and said second yaw actuator
7 if said yaw condition exists.

8

9 17. The method of operating an implement pitch-yaw system of Claim 15,
10 wherein said support structure has an elongate structure.

11

12

13 18. The method of operating an implement pitch-yaw system of Claim 17,
14 wherein said support structure has a cavity for receiving said pitch actuator.

15

16

17 19. The method of operating an implement pitch-yaw system of Claim 17,
18 including a slide structure slidably positioned about said support structure, wherein
19 said connecting member is attached to said slide structure.

20

21

22 20. The method of operating an implement pitch-yaw system of Claim 15,
23 wherein said connecting member has a winged structure, wherein said first yaw
24 actuator and said second yaw actuator are attached to opposing portions of said
25 connecting member.

26